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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,759	07/21/2003	Koichi Ono	03-485	1731

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BACHMAN & LAPOINTE, P.C.
900 CHAPEL STREET
SUITE 1201
NEW HAVEN, CT 06510

EXAMINER

LEVKOVICH, NATALIA A

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 10/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/626,759

Applicant(s)

ONO, KOICHI

Examiner

Natalia Levkovich

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the 'excessive liquid receiving portion' recited in claim 5, the 'portion of the gap above a side wall of the recessed portion' recited in claim 3, the protrusion recited in claims 13, 18 and 30, and the spacer recited in claims 19 and 31 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2-3, 5, 7, 9-19 and 26-29 are rejected under 35 U.S.C. 112, second paragraph, as being unclear for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2 and 3 recite a gap 'so formed as to fill said liquid in said gap'. It is unclear what structure would provide for the claimed function.

Claim 3 recites a portion of the gap 'just above a side wall of said recessed portion', which is not clear.

Claim 5 recites: 'said plate member has an excessive liquid receiving portion for receiving therein an excessive part of said liquid". The structure of the portion, which would provide for receiving the liquid, is not set forth. It is unclear whether the portion coincides or not with the gap.

Claim 7 recites 'means for holding said gap so as to allow said liquid to permeate said gap due to capillarity while preventing said liquid from entering said recessed portion'. The above mentioned 'means for holding' are not clearly identified in the specification.

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Claim 9 recites: 'said plate member having an adhesive relief portion which is formed around said bonded surface so as to be recessed from said bonded surface, and said gap being formed between said bonded surface and said lid member so as to allow said adhesive to permeate said gap due to capillarity'. It is not clear whether the 'relief portion' coincides with the gap.

Claims 14 –19 and 26-29 recite 'spacer protrusions' shown in the drawings as openings. Since no distinct definition for the term is provided in the specification, clarification is requested.

Claims 14 –19 and 26-29 include the expression underlined below: 'a plate assembly as set forth in claim 9, wherein at least one of said bonded surface of said plate member and said lid member has a spacer protrusion which contacts the other of said bonded surface of said plate member and said lid member to form said gap between said bonded surface of said plate member and said lid member...', which is unclear, clarification is requested.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4 and 6-8 are rejected under 35 U.S.C. 102(b) as anticipated

by any of Vaganov (US 6406636), Zhao et al. (US 20020079219), or Anderson et al. (US 20020022261).

Vaganov teaches microstructures formed by planar members (wafers) bonded together by various means (including adhesive bonding). "The bonding material fills the cavities in the microstructures... In some cases the bonded surfaces include spacers which define a precisely defined distance between the two wafers, thus providing an exactly specified thickness of the bonding material "(Abstract). As shown in Figure 28 below, the upper plate / 'lid' 200 covers the lower plate 202 which has a central recessed portion between two gaps 'formed between the plate member and the lid member'.

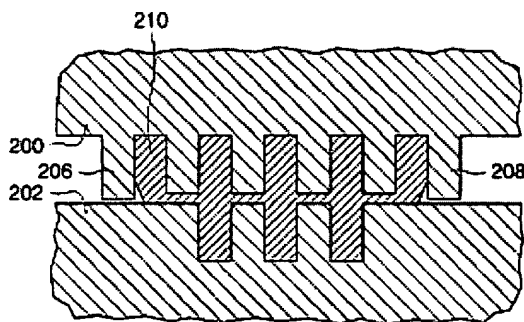


FIG. 28

With respect to claims 4 and 6, Vaganov discloses, as illustrated in Figure 31, holes 242 and 246 formed in the cover for introducing adhesives.

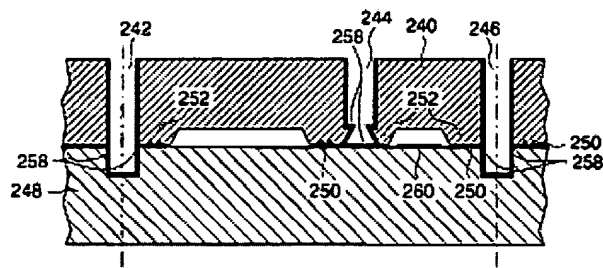


FIG. 31

Zhao discloses micro-fluidic devices of various structures for conducting electrophoresis. As shown in Figure 4A, substrate 202 comprises channel 210 ['recessed area' – Ex.] and grooves 204 ['gaps' – Ex.]. The substrate is bonded to the lid 208 with adhesives (See [0092], [0089]).

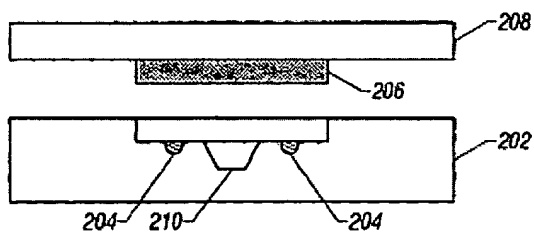


FIG. 4A

Figure 2 illustrates holes in the lid communicating with the recessed area.

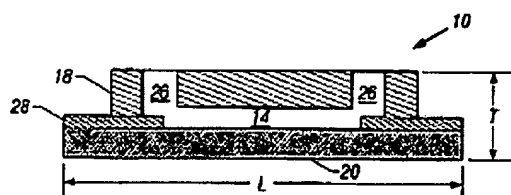


FIG. 2

Anderson discloses multi-layer micro-structures, the layers being bonded with

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adhesives. One of the embodiments shown in Figures 44A, 44 B comprises a cartridge / plate 5520 having a plurality of chambers ['recesses' and 'gaps' – Ex.] 5510 and a coverslip 5530 having inlet and outlet holes 5532 and 5534 communicating with the chambers. –(See [-342], [0152]).

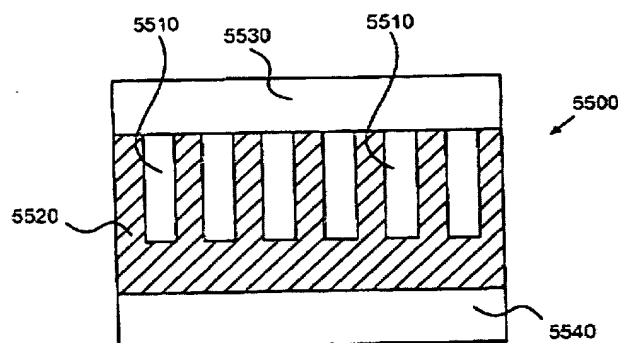


FIG. 44A

With respect to claim 2, no further structural limitations are recited in the claim.

The functional language in the apparatus claims is not accorded any patentable weight.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 5 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of Vaganov, Zhao, or Anderson.

With respect to claim 5, although Vaganov, Zhao, or Anderson do not teach 'an excessive liquid receiving portion' (in accordance with the Examiner's assumption that this portion is an additional recess communicating with other recesses), the aforementioned elements are well known, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed such portions for removing excessive liquids.

Referring to claim 20, although Vaganov, Zhao, or Anderson do not specify the liquid to be a filler, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed such fillers for filling the empty cavities in order to protect the surface of the structures.

Allowable Subject Matter

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9. Claims 21-25 and 30-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art does not teach, or fairly suggest a plate assembly having an adhesive surface surrounding recessed portions, as recited in claim 21.

10. Claims 9-19 and 26-29 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The prior art does not teach, or fairly suggest a plate assembly having an adhesive surface surrounding recessed portions, as recited in claims 9 and 21.


Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalia Levkovich whose telephone number is 571-272-2462. The examiner can normally be reached on Mon-Fri, 8 a.m.-4p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jill Warden
Supervisory Patent Examiner
Technology Center 1700